What is claimed is:

1. An apparatus for grinding or polishing at least one edge of a glass substrate, the apparatus comprising:

an air bearing support member configured to pivot about an axis of rotation with zero frictional resistance opposing said pivotal movement; and

a grinding unit coupled to the air bearing support member, the grinding unit being configured to apply a predetermined force normal to the at least one edge to remove a predetermined amount of material from the at least one edge while tracking the at least one edge, the predetermined force being directly proportional to the predetermined amount and less than a normal force resulting in glass substrate breakage.

2. The apparatus of claim 1, wherein the air bearing support member further comprises:

a stationary support housing;

a pressurized air unit configured to provide a continual flow of pressurized air; and

an air bearing cylinder disposed within the housing, and coupled to the grinding unit and the pressurized air source, the air bearing cylinder being supported by the pressurized air and configured to freely pivot about the axis of rotation with zero frictional resistance.

3. The apparatus of claim 1, wherein the grinding unit further comprises:

a support platform coupled to the air bearing support member, the support platform being configured to pivot about the axis of rotation with the air bearing support member; and

a grinding device coupled to a portion of the support platform offset from the axis of rotation, the grinding device being configured to grind or polish the at least one edge.

4. The apparatus of claim 3, wherein the support platform includes a counter weight, the counterweight and the grinding device being symmetric about the axis of rotation.

5. The apparatus of claim 3, wherein the grinding device further comprises:

an air bearing motor coupled to the support platform; and

a grinding wheel coupled to the air bearing motor, the grinding wheel being driven by the air bearing motor to rotate at a predetermined angular velocity.

6. The apparatus of claim 5, wherein the grinding wheel is a 400 grit or finer grit grinding wheel.

7. The apparatus of claim 5, wherein the grinding wheel is a equal to or finer than 600 grit but not less than 1000 grit grinding wheel.

8. The apparatus of claim 5, wherein the grinding device further comprises a pneumatic cylinder coupled to the support platform, the pneumatic cylinder being configured to apply the predetermined force normal to the at least one edge to remove the predetermined amount of material from the at least one edge.

9. The apparatus of claim 8, wherein the predetermined force is substantially within the range of 1N – 6N with a resolution of 0.25 N, and the predetermined amount is substantially within the range of 25 microns – 150 microns.

10. The apparatus of claim 9, wherein the predetermined force is substantially equal to 4N and the predetermined amount of material removed from the edge is substantially equal to 100 microns.

11. The apparatus of claim 1, further comprising a conveyor system disposed proximate the grinding unit, the conveyor unit being configured to support the glass substrate, and move the glass substrate in a tangential direction relative to the grinding unit during grinding and/or polishing process steps.

12. The apparatus of claim 11, wherein the conveyor system further comprises:

a vacuum chuck for holding the glass substrate in a fixed position during the grinding and/or polishing process steps;

a conveyor coupled to the vacuum chuck, the conveyor being configured to move the vacuum chuck in a linear direction relative to the grinding unit at a predetermined rate; and

a coolant mechanism disposed proximate an interface of the grinding unit and the at least one edge.

13. The apparatus of claim 1, wherein a thickness of the predetermined amount of material removed from the at least one edge is uniform.

14. A method for grinding or polishing at least one edge of a glass substrate, the apparatus comprising:

providing an air bearing support member configured to pivot about an axis of rotation with zero frictional resistance opposing said pivotal movement;

coupling a grinding wheel to the air bearing support member, such that the grinding wheel tends to pivot about the axis of rotation; and

positioning the grinding wheel at a corner of the glass substrate, the grinding wheel being in contact with the at least one edge;

loading the grinding wheel to thereby apply a predetermined force normal to the at least one edge, the predetermined force being directly proportional to the predetermined amount and less than a normal force resulting in glass substrate breakage; and

moving the glass substrate in a tangential direction relative to the grinding wheel to remove a predetermined amount of material from the at least one edge.

15. The method of claim 14, wherein the predetermined force causes the grinding wheel to track the at least one edge.

16. The method of claim 14, wherein the predetermined force is substantially within the range of 1N – 6N, and the predetermined amount is substantially within the range of 25 microns – 150 microns.

17. The method of claim 16, wherein the predetermined force is substantially equal to 4N and the predetermined amount of material removed from the edge is substantially equal to 100 microns.

18. The method of claim 14, wherein a thickness of the predetermined amount of material removed from the at least one edge is uniform.

19. The method of claim 14, wherein the step of moving further comprises the step of rotating the grinding wheel at a predetermined angular velocity.

20. The method of claim 19, wherein the predetermined angular velocity is approximately between 2,000 and 3,000 surface meters/minute.

21. The method of claim 14, wherein the step of moving further comprises the step of moving the glass substrate in a tangential direction relative to the grinding wheel at a predetermined linear velocity.

22. The method of claim 19, wherein the predetermined linear velocity is approximately 5 meters/minute.